INTERNATIONAL CONGRESS

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G.R.C.A

GRC IN THE 80s

FULL PROCEEDINGS

PARIS 10–12 NOVEMBER 1981

Proceedings of the International Congress

on

GLASS FIBRE REINFORCED CEMENT

held at the

Sofitel Hotel, Paris, France

10 - 12 November 1981

Edited by

Vincent Blake

The Glassfibre Reinforced Cement Association
Farthing's End, Dukes Ride, Gerrards Cross,
Bucks SL9 7LD. Telephone Gerrards Cross (02813) 82606.

Editor's note

The papers given at the Congress are presented, in most cases, in the original typescripts submitted by the authors.

Discussion periods have been edited from the transcripts of tape recordings taken during the Congress, in conjunction with the confirmatory written questions submitted on the forms provided. Generally, where written questions were not submitted, discussion has been omitted. In some cases, retrospective discussion has been transposed to the relevent Session to improve continuity.

Whilst every care has been taken to ensure that speakers' views have been truly represented, the Glassfibre Reinforced cement Association and its officers cannot accept any responsibility for inaccuracies or errors which may have occurred.

Vincent Blake
Secretary
Glassfibre Reinforced Cement Association

March 1982

The Glassfibre Reinforced Cement Association

This Association was formed in October 1975, to serve the fast growing GRC Industry and has already a membership of many manufacturing licensees, material and equipment suppliers, and professional people interested in this new material.

The aims and objects of the Association may be summarised as follows:-

1. The establishment of a unity of purpose amongst those engaged in the industry to create a good product image for the material.
2. To promote the material in all its valid applications to advance the interests of members.
3. The joining of interested parties to share information and investigate matters of mutual interest.
4. To establish independent Codes of Practice, covering manufacturing methods, performance parameters, and commercial practice.
5. To organise from time to time meetings and larger scale Conferences to discuss all aspects of GRC materials and their use.

The work of the Association is controlled by a Council of Members elected annually by the members in a General Meeting, and the first Council has put in hand, work by various Sub-Committees to advance the aims and objects referred to above.

Membership is International and the Council of the Association believes that those interested in the development of GRC products and markets throughout the world may be able and willing to take part in our activities for the mutual benefit of all.

Secretarial Office: Farthings End,Dukes Ride,
Gerrards Cross, Bucks, SL9 7LD.
Telephone Gerrards Cross 82606.

GRC'81 INTERNATIONAL CONGRESS

ORGANISING COMMITTEE

Mr. S.H. Cross.	Tarmac Industrial Holdings Ltd. (Chairman - and Chairman of the Association)
Miss Diana Ambrose.	Conference Services Ltd.
Mr. Keith Fryer.	Glass Reinforced Concrete (GRC) Ltd.
Mr. G.G. North.	Power Sprays Ltd.
Mr. M.J. Wragg.	Fibreglass Ltd.
Mr. G.G. Veldhoen.	Veldhoen-Isolatie B.V.
Mr. Vincent Blake.	GRCA (Secretary of the Association)

The Congress was organised on behalf of the Glassfibre Reinforced Cement Association by Conference Services Ltd. 3, Bute Street, London SW7 3EY

CONGRESS GUEST SPEAKER

The Principal Guest at the Banquet on Wednesday November 11th 1982 at the Salon Aubusson, Sofitel Hotel, Paris was

Mr. Jolyon Kay
Commercial Counsellor
British Embassy, Paris.

THE G R C A MERIT AWARD

At each biennial International Congress the Association presents an Award to an individual or Company that, in the opinion of the Selection Panel (a Sub-Committee of the Council) has made an outstanding Contribution to the GRC Industry.

The Award in 1981 was presented to Mr. George Veldhoen who accepted it on behalf of Veldhoen-Isolatie B.V. of Holland.

The Award was a Crystal Goblet given by Fibreglass Ltd., and presented by Mr. Sydney Cross - the Chairman of the Association

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GRC IN THE 80s

Wednesday, 11th November, 1981

Introduction - Mr. S. Cross (Chairman of the Association)

Ladies and Gentlemen:

We have been fortunate in securing the services of Mr. Kavyrchine to officially open the congress for us. Mr. Kavyrchine has over the years held many important positions in the construction industry. He is an assessor for the Engineer Doctor Degrees for the University of Paris and the National College of Bridges and Highways. He is President of the Commission on Execution of Works for the International Federation of Pre-Stressing, and a member of the consultative committee and of several working parties of the International European Committee for Concrete; but these are only his spare time jobs.

His full time occupation is that of Head of the Department of Structural Design at the Experimental Centre of Research and Studies for Buildings and Public Works. This is a private establishment financed by the construction industry which undertakes both private and government contracts. You may think from this he is purely academic, but this is not so. He has been involved in projects as diverse as bridge building, hydro electric schemes, airport runways, highrise structures up to 228 metres high, and port and harbour installations in many countries of Europe and on the Continent of Africa. A welcome, please, for Mr.Kavyrchine.

Opening Address

Mr. M. Kavyrchine, Centre Experimental de Recherches et D'Etudes du Batiment et des Travaux Publics. Paris.

Mr. Chairman, Ladies and Gentlemen.
Thank you, Mr. Chairman, for honouring me with your invitation to give the opening address for this Congress on GRC.
As Responsable d'un Service d'Etude et d'Essais, I have had the opportunity

of observing the development of new materials and their applications - materials whose structure is essential in the world today. Indeed, it is imperative that we should improve the use of these constructions and reduce the cost of this use and of maintenance. There is a huge demand for dwellings with an improved standard of living, for buildings which are easy to maintain, for new concepts of walls and roofing which will facilitate thermal insulation.

The Maitres d'Oeuvre and Proprietaires of buildings are more and more conscious of the need to take into account the cost of maintenance, and to forsee the possibility of future modification of the space used. This possibility includes contingent realisation of reinforcement work, equally useful for repairing components which have suffered damage through the passage of time.

One is moving towards a new generation of buildings where the total cost of construction, maintenance and usage will be reduced, and the quality improved.

To this end the use of traditional materials is making some progress, but at the same time new materials and structures have been invented, adjusted, developed and standardised in a productive struggle.

And amongst these materials GRC occupies a particularly interesting place. It is already well known, having been the subject of numerous investigations, adjustments and applications in various spheres.

Some specifications for its manufacture and its use, its quality control, exist already, but its evolution is far from being fixed, and new applications are constantly appearing.

The theme of the present Congress has therefore been very wisely orientated towards the development of GRC in the present decade.

The development of GRC will depend on improving the fabrication of components in the factory, in quality and in output. Industrial production, technically possible for some elements of all types of building or equipment, economically interesting for some repetitive uses, is the subject of many interesting innovations which will be presented to you. More will certainly follow.

The properties of GRC are useful in a number of applications: it provides good mechanical resistance which is evenly distributed; it is hard wearing and has an attractive appearance. The reaction of these properties to weather must be studied rigorously, particularly to justify the use of GRC in load-bearing structures. The addition of new components, such as polymers, provides further possibilities.

The good bonding of elements in a narrow partition in GRC allows its application in many spheres. Drains, urban furniture, facade panels, load-bearing components, are produced and used, and give a new aspect to our environment. Future developments will have to comply with the needs of the user in the economic, cultural and climatic atmosphere of varying areas.

A standardisation of prefabricated products and of their quality will contribute to facilitating their use.

But the direct use of GRC on site is being developed in itself; facings which are particularly resistant, reinforcement by application of a coating, complete and reinforce the methods of the builder and of "maitres d'oeuvre". Repair and reinforcement of "stock" in existing concrete or in stone works, and the renovation of ancient buildings, are areas in which the use of GRC can still be developed.

The examples of the use of GRC in all the spheres quoted above provide useful references: these must be the subject of publications supported by the observations and limits in order to justify a point of departure for new applications. Laboratory studies simulating extreme conditions of utilisation will furnish other indispensable information.

The present decade must therefore see innovations, improvements in the composition, the manufacture and utilisation of GRC. It is necessary to improve the possibilities of giving to these materials the qualities corresponding to such particular use.

In the conception of standardisation of components close collaboration is necessary between research workers, manufacturers, builders, architects and users. Clear information is indispensable to "maitres d'oeuvre" and to the public, on the possibilities of GRC and its properties. Producers and those who apply this product can then, in the framework of a policy which takes into account the quality and limitation of costs, make an important contribution to the enterprise of tomorrow.

I am happy to declare this Congress open.

S E S S I O N 1

TECHNIQUES

Chairman S.H.Cross

Tarmac Industrial Holdings Ltd. U.K.